

# **Appendix D**

## **Emissions Inventory Summary**



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# **1 INTRODUCTION**

This Appendix contains emission summary tables for the Cincinnati-Hamilton OH-KY-IN 8-hour Ozone Nonattainment Area, and for the Association for Southeastern Integrated Planning (ASIP) states. The ASIP states include Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia. All the emissions are representative of a typical summer weekday.

During the mid 1990s a regional modeling effort was undertaken called Ozone Transport Assessment Group (OTAG). This project combined the efforts of the states in the mid-west and in the northeast and southeast, as well as the US Environmental Protection Agency and industry stakeholders. During this modeling, it was decided to use Thursday emissions as “typical” weekday emissions since Friday emissions tend to have higher emissions and Monday emissions tend to be lower. All those involved in OTAG accepted this reporting standard.

The Kentucky Division of Air Quality adopted this standard for ease of reporting and Thursday emissions were used for the baseline and attainment year inventories. Since the modeling was for the period May through September, a July Thursday was chosen to represent the typical summer weekday emissions. The emissions may vary by day of the week depending on temperature and daily activity distribution, but Thursday emissions are general accepted as “typical” summer weekday emissions in the modeling community.

Since the emission summaries are obtained from the emissions modeling reports, which reports whole county emissions, it is not easily determined the emissions for just the nonattainment area for Dearborn County, IN. Although a population ratio of nonattainment area to whole county population is often used to adjust area source emissions, this would not make sense for point and highway mobile sources. To be consistent between all source sectors, the nonattainment area emissions tables contain the whole county emissions for Dearborn County.

## **2 BASELINE YEAR (2002) INVENTORIES**

The emissions are reported as tons/day of pollutant. Biogenic emissions are temperature dependent and vary from episode to episode. However, since the meteorological inputs are kept constant when modeling the baseline year and future years, the biogenic emissions will remain at the episodic level. Therefore, the biogenic emissions are only presented in this section.

The emission summary tables below are in the following order:

- 2002 Nonattainment Area Emissions
- 2002 ASIP States Emissions
- Biogenic Emissions

**Table 1. 2002 Episode Emissions Summaries For Cincinnati-Hamilton OH-KY-IN 8-hour Ozone Nonattainment Area Counties.**

County	POINT (typical)		AREA (typical)		NON-ROAD		MOBILE**	
	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC
Boone, KY	11.28	2.43	4.92	7.42	11.99	4.77	11.99	6.17
Campbell, KY	0.15	0.51	1.25	3.97	5.81	1.50	5.90	3.54
Kenton, KY	0.05	0.73	3.93	7.22	8.62	2.45	10.93	6.35
Butler, OH	17.71	2.94	0.95	10.03	16.72	8.05	20.73	17.65
Clermont, OH	130.48	0.55	0.70	5.53	7.61	4.65	13.94	10.33
Clinton, OH	0	0	0.17	2.36	3.90	1.49	4.30	2.72
Hamilton, OH	69.19	1.26	3.27	29.13	30.67	18.89	64.68	54.27
Warren, OH	2.47	0.28	0.71	5.53	10.71	5.30	11.56	8.56
Dearborn, IN*	62.77	2.06	0.22	1.60	2.07	0.92	5.79	3.69

\*Only part of Dearborn County is in the nonattainment area, however the emissions represented in the table above are for the whole county.

\*\*OKI Mobile Emissions

Emissions reported as tons/summer day.

**Table 2. 2002 Episode Emissions Summaries For 12 km ASIP States.**

STATE	POINT (typical)		AREA (typical)		NON-ROAD		MOBILE	
	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC
Alabama	627.9	131.0	28.8	377.4	210.1	177.5	483.8	372.5
Florida	864.2	107.1	116.2	1166.3	645.2	796.9	1457.4	1298.3
Georgia	491.5	96.6	87.9	759.8	338.7	259.5	936.8	840.2
Kentucky	560.1	120.6	105.3	235.5	323.4	133.3	459.6	288.9
Mississippi	281.2	120.5	2.4	301.2	267.9	120.6	340.5	246.5
North Carolina	491.5	170.7	70.4	415.0	302.4	282.4	973.1	714.7
South Carolina	351.9	107.5	48.3	317.5	171.8	162.3	428.3	322.5
Tennessee	545.4	237.6	30.1	355.1	311.8	197.9	711.0	482.4
Virginia	381.2	121.1	117.8	323.4	246.6	240.5	660.8	423.4
West Virginia	630.2	43.4	26.4	144.8	101.8	59.5	173.3	121.4

Emissions reported as tons/summer day.

**Table 3. Biogenic Episode Emissions Summary For Cincinnati-Hamilton OH-KY-IN 8-hour Ozone Nonattainment Area Counties.**

County	NOx	VOC
Boone, KY	0.5	20.0
Campbell, KY	0.6	22.1
Kenton, KY	0.5	19.8
Butler, OH	1.2	31.9
Clermont, OH	0.6	26.3
Clinton, OH	1.5	23.0
Hamilton, OH	0.6	25.1
Warren, OH	1.1	27.8
Dearborn, IN*	0.8	27.7

\*Only part of Dearborn County is in the nonattainment area, however the emissions represented in the table above are for the whole county.

Emissions reported as tons/summer day.

## FUTURE ATTAINMENT YEAR (2008) EMISSION SUMMARIES

The emissions are reported as tons/day of pollutant. The emission summary tables below are in the following order:

- 2008 Nonattainment Area Emissions
- 2009 ASIP States Emissions

**Table 4. 2008 Episode Emissions Summaries For Cincinnati-Hamilton OH-KY-IN 8-hour Ozone Nonattainment Area Counties.**

County	POINT (typical)		AREA (typical)		NON-ROAD		MOBILE	
	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC
Boone, KY	13.01	2.50	5.33	8.50	10.41	4.04	8.09	3.78
Campbell, KY	0.17	0.56	1.53	4.67	5.05	1.10	4.85	2.27
Kenton, KY	0.06	0.79	4.46	8.35	7.05	1.68	8.42	3.86
Butler, OH	13.88	3.00	2.49	10.98	8.03	3.83	15.55	7.79
Clermont, OH	65.73	0.67	1.65	6.11	3.77	2.42	10.90	5.46
Clinton, OH	0	0	0.44	2.54	2.15	1.15	4.17	2.41
Hamilton, OH	45.48	1.25	8.26	30.45	15.55	9.70	45.16	22.36
Warren, OH	2.10	0.26	1.58	6.37	4.71	2.76	11.83	5.93
Dearborn, IN*	41.25	2.81	0.42	2.12	1.27	0.52	1.09	0.72

\*Only part of Dearborn County is in the nonattainment area, however the emissions represented in the table above are for the whole county.

Emissions reported as tons/summer day.

**Table 5. 2009 Episode Emissions Summaries For 12 km ASIP States.**

STATE	POINT (typical)		AREA (typical)		NON-ROAD		MOBILE	
	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC
Alabama	408.9	130.5	29.6	337.2	181.1	147.1	308.9	218.7
Florida	368.8	100.1	113.7	1225.9	574.6	611.0	980.2	804.7
Georgia	389.2	100.8	90.7	717.2	293.3	203.3	642.1	577.1
Kentucky	340.6	128.0	112.3	242.9	290.3	114.1	296.9	207.1
Mississippi	253.2	104.9	2.4	297.5	241.2	106.1	213.6	142.2
North Carolina	282.3	172.6	75.9	381.8	253.4	220.2	591.9	444.0
South Carolina	243.8	100.2	47.9	342.9	146.5	126.5	280.0	194.0
Tennessee	332.8	210.0	31.5	372.1	275.8	164.4	450.1	308.8
Virginia	309.0	122.8	31.5	372.1	211.8	182.9	400.7	255.8
West Virginia	312.9	41.8	28.1	137.4	91.5	58.6	103.8	71.6

Emissions reported as tons/summer day.

Documentation of the development of the 2008 inventory is located in Appendix I.